

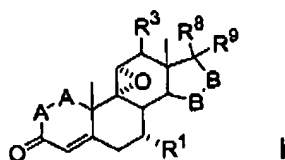
PHA 4199.1(3090/7/US)

This listing of claims will replace all prior versions, and listings, of claims in the application:

### Listing of Claims:

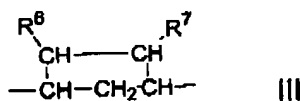
Claims 1-65. (cancelled).

Claim 66. (currently amended) A process for the formation of a compound of Formula I:



wherein -A-A- represents the group  $-\text{CHR}^4-\text{CHR}^5-$  or  $-\text{CR}^4=\text{CR}^5-$ ;

-B-B- represents the group  $-\text{CHR}^6-\text{CHR}^7-$  or an alpha- or beta-oriented group of Formula III:



$\text{R}^1$  represents an  $\alpha$ -oriented lower alkoxy carbonyl or hydroxycarbonyl radical;

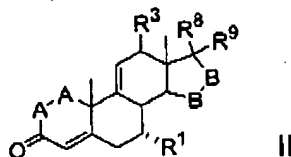
$\text{R}^3$ ,  $\text{R}^4$  and  $\text{R}^5$  are independently selected from the group consisting of hydrogen, halo, hydroxy, lower alkyl, lower alkoxy, hydroxyalkyl, alkoxyalkyl, hydroxy carbonyl, cyano, and aryloxy;

$\text{R}^6$  and  $\text{R}^7$  are independently selected from the group consisting of hydrogen, halo, lower alkoxy, acyl, hydroxyalkyl, alkoxyalkyl, hydroxycarbonyl, alkyl, alkoxy carbonyl, acyloxyalkyl, cyano, and aryloxy; and

$\text{R}^8$  and  $\text{R}^9$  are independently selected from the group consisting of hydrogen, hydroxy, halo, lower alkoxy, acyl, hydroxyalkyl, alkoxyalkyl, hydroxycarbonylalkyl, alkoxy carbonylalkyl, acyloxyalkyl, cyano, and aryloxy, or  $\text{R}^8$  and  $\text{R}^9$  together comprise a carbocyclic or heterocyclic ring structure, or  $\text{R}^8$  or  $\text{R}^9$  together with  $\text{R}^6$  or  $\text{R}^7$  comprise a carbocyclic or heterocyclic ring structure fused to the pentacyclic D ring;

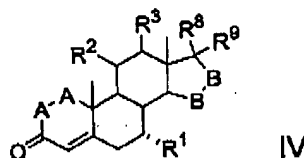
PHA 4199.1(3090/7/US)

the process comprising epoxidizing ~~converting~~ a compound of Formula II ~~to a compound of Formula I~~, said compound of Formula II having the structure:



wherein -A-A-, -B-B-, R<sup>1</sup>, R<sup>3</sup>, R<sup>8</sup> and R<sup>9</sup> are as defined above;

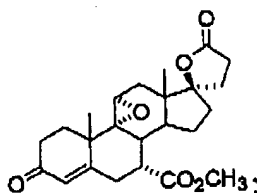
wherein preparation of said compound of Formula II comprises ~~is~~ prepared by eliminating a leaving group from ~~converting~~ a compound of Formula IV ~~to a compound of Formula II~~, said compound of Formula IV having the structure:



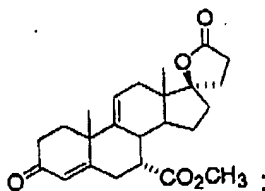
wherein -A-A-, -B-B-, R<sup>1</sup>, R<sup>3</sup>, R<sup>8</sup> and R<sup>9</sup> are as defined above, and R<sup>2</sup> is a leaving group the abstraction of which is effective for generating a double bond between the 9- and 11-carbon atoms.

Claim 67. (cancelled)

Claim 68. (previously presented) A process as set forth in claim 66 wherein said compound of Formula I is:



said compound of Formula II is:



and said compound of Formula IV is:

COC(=O)C[C@H]1CC[C@@H]2[C@@]1(CC[C@H]3[C@H]2CC=C4[C@@]3(CC[C@@H](C4)C(=O)OC)C)C

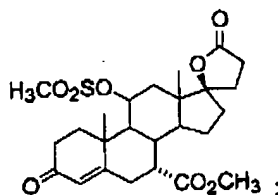
Chemical structure of a steroid derivative, labeled V. The structure shows a steroid nucleus with various substituents: A, B, R<sup>1</sup>, R<sup>3</sup>, R<sup>8</sup>, R<sup>9</sup>, and a hydroxyl group (HO).

The chemical structure shows a steroid nucleus with a methyl ester group ( $\text{CO}_2\text{CH}_3$ ) at C-3 and a cyclopentanone ring at C-17. Stereochemistry is indicated with wedges and dashes.

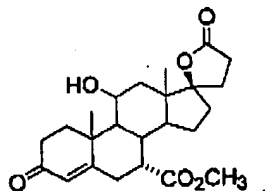
Chemical structure of a steroid derivative, showing a ketone group at C3, a double bond at C5, and a methyl ester group at C17.

PAGE 7/23 \* RCVD AT 6/10/2005 12:26:21 PM [Eastern Daylight Time] \* SVR:USPTO-EFXRF-1/7 \* DNIS:8729306 \* CSID:3142314342 \* DURATION (mm:ss):04:56

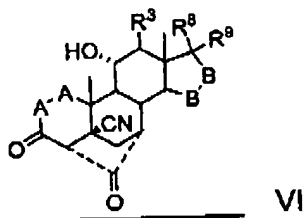
PHA 4199.1(3090/7/US)



and said compound of Formula V is:



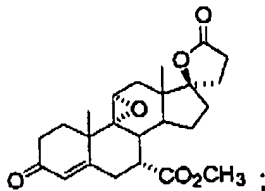
Claim 73. (currently amended) A process as set forth in claim 69 wherein preparation of the compound of Formula V comprises ~~is prepared by reacting~~ converting a compound of Formula VI with a metal alkoxide ~~to a compound of~~ Formula V, said compound of Formula VI having the structure:



wherein -A-A-, -B-B-,  $\text{R}^3$ ,  $\text{R}^8$  and  $\text{R}^9$  are as defined in claim 69.

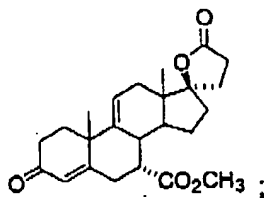
Claim 74. (cancelled)

Claim 75. (currently amended) The process of claim 73 wherein said compound of Formula I is:

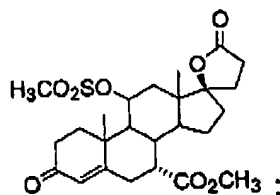


said compound of Formula II is:

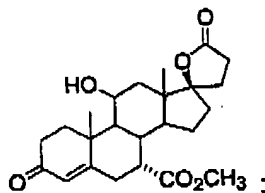
PHA 4199.1(3090/7/US)



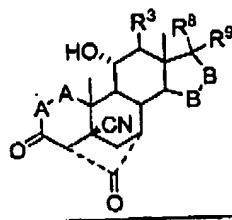
said compound of Formula IV is:



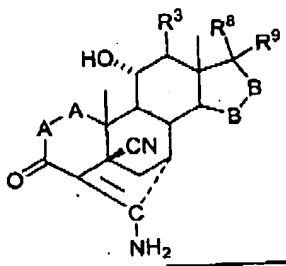
said compound of Formula V is:



and said compound of Formula VI is:



Claim 76. (currently amended) A process as set forth in claim 73 wherein preparation of the compound of Formula VI ~~is prepared by~~ comprises hydrolyzing ~~converting~~ a compound of Formula VII ~~to a compound of Formula~~ VI, said compound of Formula VII having the structure:



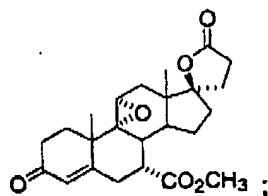
VIII

wherein -A-A-, -B-B-, R<sup>3</sup>, R<sup>8</sup> and R<sup>9</sup> are as defined in claim 73.

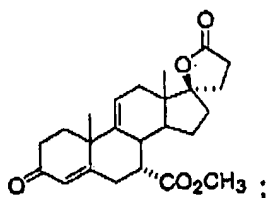
PHA 4199.1(3090/7/US)

Claim 77. (cancelled)

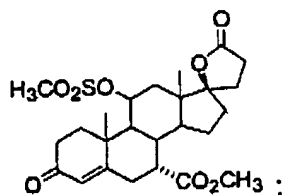
Claim 78. (currently amended) The process of claim 76 wherein said compound of Formula I is:



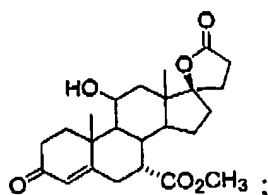
said compound of Formula II is:



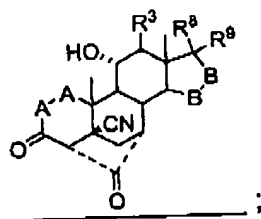
said compound of Formula IV is:



said compound of Formula V is:

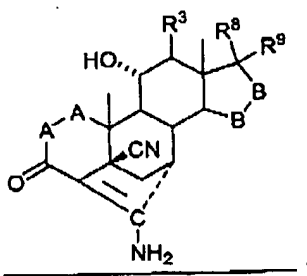


said compound of Formula VI is:

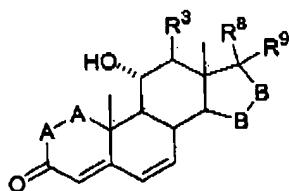


and said compound of Formula VII is:

PHA 4199.1(3090/7/US)



Claim 79. (currently amended) A process as set forth in claim 76 wherein preparation of the compound of Formula VII comprises ~~is prepared by~~ cyanidating ~~converting~~ a compound of Formula VIII ~~to a compound of Formula VII~~, said compound of Formula VIII having the structure:

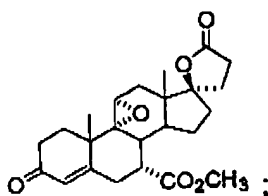


VIII

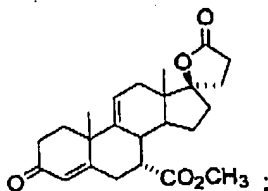
wherein -A-A-, -B-B-, R<sup>3</sup>, R<sup>8</sup> and R<sup>9</sup> are as defined in claim 76.

Claims 80. – 81. (cancelled)

Claim 82. (currently amended) A process as set forth in claim 79 wherein said compound of Formula I is:

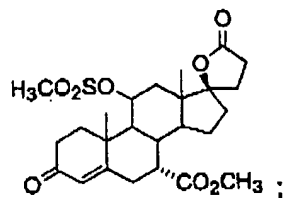


said compound of Formula II is:

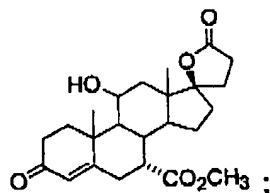


said compound of Formula IV is:

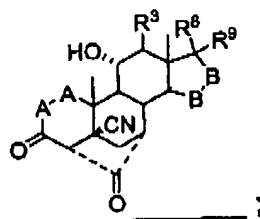
PHA 4199.1(3090/7/US)



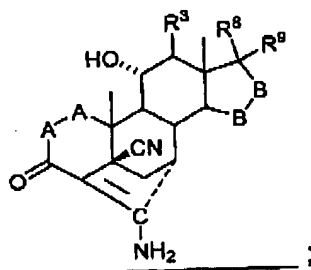
said compound of Formula V is:



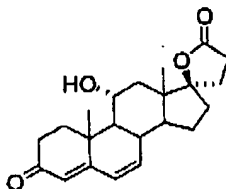
said compound of Formula VI is:



said compound of Formula VII is:

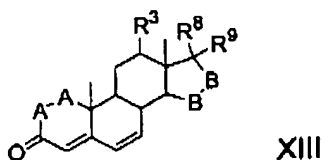


and said compound of Formula VIII is:



Claim 83. (currently amended) A process as set forth in claim 79 wherein preparation of the compound of Formula VIII comprises ~~is prepared by~~ hydroxylating ~~converting~~ a compound of Formula XIII ~~to a compound of~~ Formula VIII, said compound of Formula XIII having the structure:

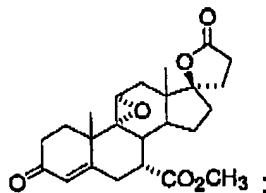
PHA 4199.1(3090/7/US)



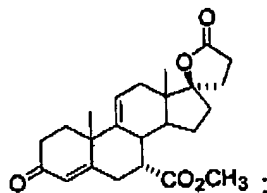
wherein -A-A-, -B-B-,  $R^3$ ,  $R^8$  and  $R^9$  are as defined in claim 79.

Claims 84. - 85 (cancelled)

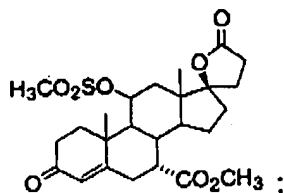
Claim 86. (currently amended) A process as set forth in claim 83 wherein said compound of Formula I is:



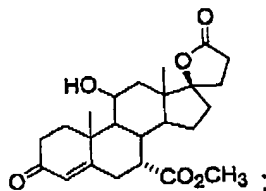
said compound of Formula II is:



said compound of Formula IV is:

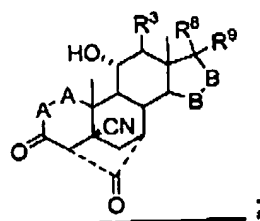


said compound of Formula V is:

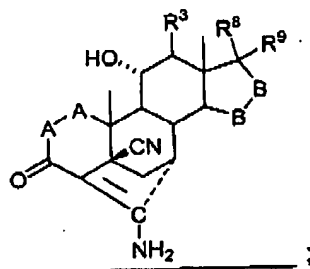


said compound of Formula VI is:

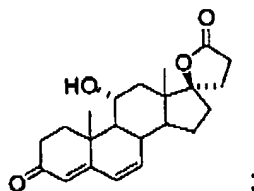
PHA 4199.1(3090/7/US)



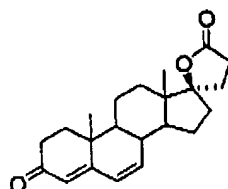
said compound of Formula VII is:



said compound of Formula VIII is:



and said compound of Formula XIII is:



Claims 87. – 93. (cancelled)

Claim 94. (currently amended) A process as set forth in claim 66 wherein said epoxidation conversion of a compound of Formula II to a compound of Formula I is effected by comprises contacting an epoxidizing reagent with a compound of Formula II.

Claim 95. (currently amended) A process as set forth in claim 66 wherein elimination of said leaving group from conversion of a compound of Formula

PHA 4199.1(3090/7/US)

IV to ~~form~~ a compound of Formula II is effected by comprises removing an 11 $\alpha$ -leaving group from a compound of Formula IV.

Claim 96. (currently amended) A process as set forth in claim 69 wherein said esterification or halogenation ~~conversion~~ of a compound of Formula V to a compound of Formula IV is effected by comprises reacting a lower alkylsulfonylating or acylating reagent or a halide generating agent with a compound of Formula V.

Claim 97. (currently amended) A process as set forth in claim 73 wherein said reaction ~~conversion~~ of a compound of Formula VI with a metal alkoxide to a compound of Formula V is effected by comprises reacting a compound of Formula VI with an alkali metal alkoxide corresponding to the formula R<sup>10</sup>OM wherein M is alkali metal and R<sup>10</sup>O- corresponds to the alkoxy substituent of R<sup>1</sup>.

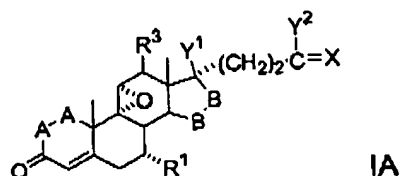
Claim 98. (cancelled) A process as set forth in claim 76 wherein said ~~conversion of a compound of Formula VII to a compound of Formula VI is effected by hydrolyzing a compound of Formula VII.~~

Claim 99. (currently amended) A process as set forth in claim 79 wherein said cyanidation ~~conversion~~ of a compound of Formula VIII to a compound of Formula VII is effected by comprises reacting a source of cyanide ion in the presence of an alkali metal salt with a compound of Formula VIII.

Claim 100. (currently amended) A process as set forth in claim 83 wherein said hydroxylation ~~conversion~~ of a compound of Formula XIII to a compound of Formula VIII is effected by comprises oxidizing a compound of Formula XIII by fermentation in the presence of a microorganism effective for introducing an 11-hydroxy group into said substrate in  $\alpha$ -orientation.

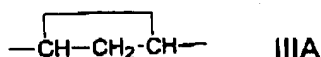
Claim 101. (currently amended) A process for the formation of a compound of Formula IA:

PHA 4199.1(3090/7/US)



wherein -A-A- represents the group  $-\text{CH}_2-\text{CH}_2-$  or  $-\text{CH}=\text{CH}-$ ;

-B-B- represents the group  $-\text{CH}_2-\text{CH}_2-$  or an alpha- or beta- oriented group of Formula IIIA:



$\text{R}^1$  represents an alpha-oriented lower alkoxy carbonyl radical;

X represents two hydrogen atoms or oxo;

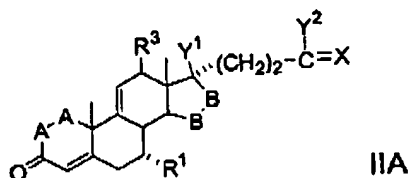
$\text{Y}^1$  and  $\text{Y}^2$  together represent the oxygen bridge  $-\text{O}-$ , or

$\text{Y}^1$  represents hydroxy, and

$\text{Y}^2$  represents hydroxy, lower alkoxy or, if X represents  $\text{H}_2$ , also lower alkanoyloxy;

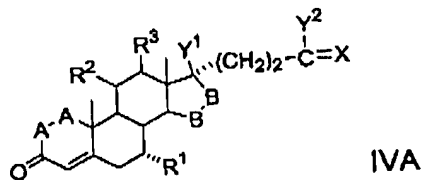
and salts of compounds in which X represents oxo and  $\text{Y}^2$  represents hydroxy;

the process comprising epoxidizing ~~converting~~ a compound of Formula IIA to a compound of Formula IA, said compound of Formula IIA having the structure:



wherein -A-A-, -B-B-,  $\text{R}^1$ ,  $\text{R}^3$ , X,  $\text{Y}^1$  and  $\text{Y}^2$  are as defined above;

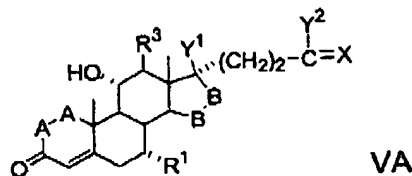
wherein formation of said compound of Formula IIA is ~~formed by~~ comprises eliminating a leaving group from ~~converting~~ a compound of Formula IVA to a compound of Formula IIA, said compound of Formula IVA having the structure:



PHA 4199.1(3090/7/US)

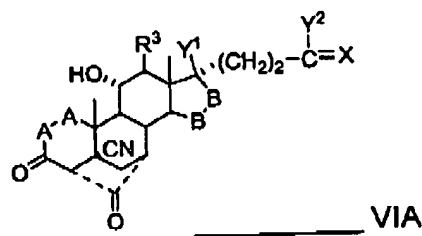
wherein -A-A-, -B-B-,  $R^1$ ,  $R^3$ , X,  $Y^1$  and  $Y^2$  are as defined above, and  $R^2$  represents lower alkylsulfonyloxy or acyloxy; **and**

wherein **formation of** said compound of Formula IVA is ~~formed by~~ **comprises esterifying or halogenating** converting a compound of Formula VA to a compound of Formula IVA, said compound of Formula VA having the structure:



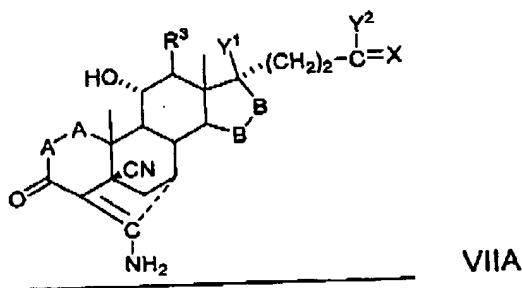
wherein -A-A-, -B-B-,  $R^1$ ,  $R^3$ , X,  $Y^1$  and  $Y^2$  are as defined above;

wherein **formation of** said compound of Formula VA is ~~formed by~~ **comprises reacting** converting a compound of Formula VIA **with a metal alkoxide** to a compound of Formula VA, said compound of Formula VIA having the structure:



wherein -A-A-, -B-B-,  $R^3$ , X,  $Y^1$  and  $Y^2$  are as defined above; **and**

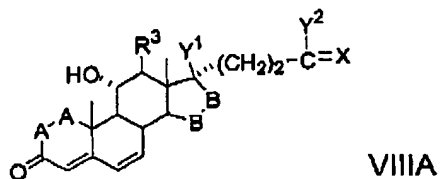
wherein **formation of** said compound of Formula VIA is ~~formed by~~ **comprises hydrolyzing** converting a compound of Formula VIIA to a compound of Formula VIA, said compound of Formula VIIA having the structure:



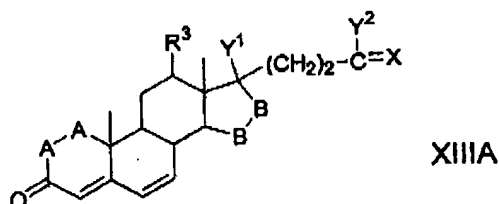
wherein -A-A-, -B-B-,  $R^3$ , X,  $Y^1$  and  $Y^2$  are as defined above; **and**

PHA 4199.1(3090/7/US)

wherein formation of said compound of Formula VIIA is formed by cyanidating ~~converting~~ a compound of Formula VIIIA to form ~~a compound of~~ Formula VIIA, said compound of Formula VIIIA having the structure:



wherein -A-A-, -B-B-,  $R^3$ , X,  $Y^1$  and  $Y^2$  are as defined above; and  
 wherein formation of said compound of Formula VIIIA is formed by comprises hydroxylating ~~converting~~ a compound of Formula XIII A to form ~~a~~  
~~compound of Formula VIIIA~~, said compound of Formula XIII A having the  
 structure:



wherein -A-A-, -B-B-,  $R^3$ , X,  $Y^1$  and  $Y^2$  are as defined above.